

CLAIMS

- 1 1. An optical servo writer system comprises:
2 a laser generating beams of collimated light;
3 a lens positioned to receive and focus the collimated
4 light; and
5 a spatial filter positioned adjacent the lens to allow a
6 subset of the collimated light to pass through the filter.
- 1 2. The system of claim 1 further comprising an optical
2 subsystem positioned between the laser and the lens, the
3 optical subsystem receiving the beams of collimated light and
4 splitting the beams.
- 1 3. The system of claim 2 wherein the split beams comprise
2 servo beams and ghost beams.
- 1 4. The system of claim 3 wherein the subset is servo beams.
- 1 5. The system of claim 1 further comprising a digital linear
2 tape positioned adjacent the spatial filter with the spatial
3 filter allowing the subset of collimated light to hit the
4 digital linear tape and produce servo marks.
- 1 6. The system of claim 2 wherein the optical subsystem
2 comprises an attenuator placed in proximity to a beam expander
3 and a diffractive optical element.

1 7. The system of claim 2 wherein the optical subsystem
2 comprises a bi-prism and several lenses.

1 8. The system of claim 5 wherein the spatial filter includes
2 a plurality of openings positioned to allow the subset of
3 collimated light to pass through the filter.

1 9. The system of claim 8 wherein the plurality of openings
2 are positioned relative to the plane of the digital linear
3 tape to prevent debris from clogging the openings when the
4 subset of collimated light hits the digital linear tape to
5 produce servo marks.

1 10. The system of claim 9 wherein the position of the
2 successive openings are staggered relative to the plane of the
3 digital linear tape.

1 11. The system of claim 1 wherein the spatial filter
2 comprises an ablatable film bonded to a clear substrate.

1 12. An optical system for producing a plurality of servo
2 marks on a digital linear tape comprises:

3 a laser generating beams of collimated light;

4 an optical subsystem positioned to receive the beams of
5 collimated light and split the beams;

6 a lens positioned to receive and focus the split beams;

7 and

8 a spatial filter positioned adjacent the lens to allow a
9 subset of the split beams to pass through the filter.

1 13. The system of claim 12 wherein the split beams include
2 servo beams and ghost beams.

1 14. The system of claim 13 wherein the subset is the servo
2 beams.

1 15. The system of claim 14 wherein the servo beams hit the
2 digital linear tape.

1 16. The system of claim 12 wherein the spatial filter
2 includes a plurality of apertures positioned to allow the
3 subset of split beams to pass through the filter.

1 17. The system of claim 16 where the plurality of apertures
2 are staggered with respect to each other so as to prevent
3 clogging.

1 18. A method for producing optical servo marks on a digital
2 linear tape comprises:

3 generating beams of collimated light in a laser;
4 receiving and focusing the beams of collimated light in a
5 lens; and

6 filtering the beams of collimated light near the focus of
7 the lens to allow a subset of the beams to pass through a
8 filter and hit the digital linear tape.

1 19. The method of claim 18 wherein generating further
2 comprises splitting the beams of collimated light into desired
3 beams and ghost beams.

1 20. The method of claim 19 wherein splitting is
2 accomplished by passing the beams of collimated light through
3 a diffractive optical element.

1 21. The method of claim 19 wherein splitting is
2 accomplished by passing the beams of collimated light through
3 a bi-prism lens to generate two beams which are then brought
4 back together by several lenses to form multiple spots on the
5 tape by means of two beam interference.

1 22. The method of claim 18 wherein the subset of beams is
2 the desired beams.

1 23. The method of claim 18 wherein filtering comprises
2 passing the beams of collimated light to a spatial filter.

1 24. The method of claim 23 wherein the spatial filter
2 includes a plurality of openings positioned to allow the
3 subset to pass through the filter.

1 25. The method of 24 wherein the plurality of openings are
2 generated in situ.

1 26. The method of claim 23 wherein generating the openings
2 comprises:

3 providing a solid spatial filter;
4 generating openings in the spatial filter by allowing the
5 subset to cut through the spatial filter to produce the
6 plurality of openings.

1 27. The method of claim 24 wherein the openings are staggered
2 with respect to each other to minimize clogging.

1 28. An optical servo writer system for a digital linear tape
2 comprises:

3 a laser optics system generating beams of collimated
4 light;

5 a first lens positioned to receive and focus the
6 collimated light;

7 a spatial filter positioned adjacent the lens to allow a
8 subset of the collimated light to be focused and pass through
9 the filter; and

10 a second lens positioned to restore the subset into
11 collimated beams that propagate towards a third lens.

1 29. The system of claim 28 wherein the beams comprise servo
2 beams and ghost beams.

1 30. The system of claim 29 wherein the subset is servo beams.

1 31. The system of claim 30 wherein the third lens focuses the
2 subset onto the digital linear tape producing servo marks.

1 32. The system of claim 28 wherein the laser optics system
2 comprises:

3 a laser source for producing light to an attenuator; and
4 a beam expander for receiving the light and expanding the
5 beam to become a collimated beam with the proper diameter and
6 sending it to a diffractive optical element.

1 33. The system of claim 28 wherein the laser optics system
2 comprises a laser source for producing light to a bi-prism
3 lens to generate two beams which are then brought back
4 together by several lenses to form multiple spots on the tape
5 by means of two beam interference.

1 34. The system of claim 28 wherein the spatial filter
2 includes a plurality of openings positioned to allow the
3 subset through the spatial filter.

1 35. The system of claim 28 wherein the first lens is a
2 planar-convex lens.

1 36. The system of claim 28 wherein the second lens is a
2 planar-convex lens.

1 37. The system of claim 28 wherein the third lens is a scan
2 lens.